

# The Southwest Region Wings

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Gloria Tanguay

***All*** VFR General  
Aviation Flights  
Cancelled! IFR  
Flights Require 24 hr  
Notice!

I hope I have your attention! The headline above is not a reality, but it sure could be in the near future if we general aviators don't pay attention to what we are doing. Please, if you value your flying privileges, listen to what I have to say.....!

The Temporary Flight Restriction Areas (TFR's) have been violated again and again over the past year. Since 9-11, the number and scope of the TFR's has increased with the new emphasis on national security. Any major event, munitions dump, national landmark or other significant occurrence or place may suddenly become a TFR. "Things ain't like they used to be", and they never will be again. But, believe me.....They can get a whole lot worse!!!! If we don't clean up our act right now, we deserve what we get! No, that's not fair. Because of the actions of a few non-caring fools, we may all lose the wonderful flight privileges enjoyed only by U.S. pilots!

In the past few months, there have been over 50 violations of P-49 and it's associated TFR. P stands for prohibited, and P-49 is the area around President Bush's ranch near Crawford, Texas.

At all times it encompasses a five mile radius from the surface up to 3000'. Don't fly there!!!! When the President is at the ranch, a TFR is put into effect. It may extend to over 10 miles, and above 10,000'. Don't fly there!!!! Go way around.....!

So, STOP IT! STOP IT NOW!

No more jumping in the old ship, tuning the GPS, LORAN, or other radio and flying off without a care. New habits for new times.....I don't like it any better than you, but please never leave the airport environment again without accomplishing what is necessary from the following list:

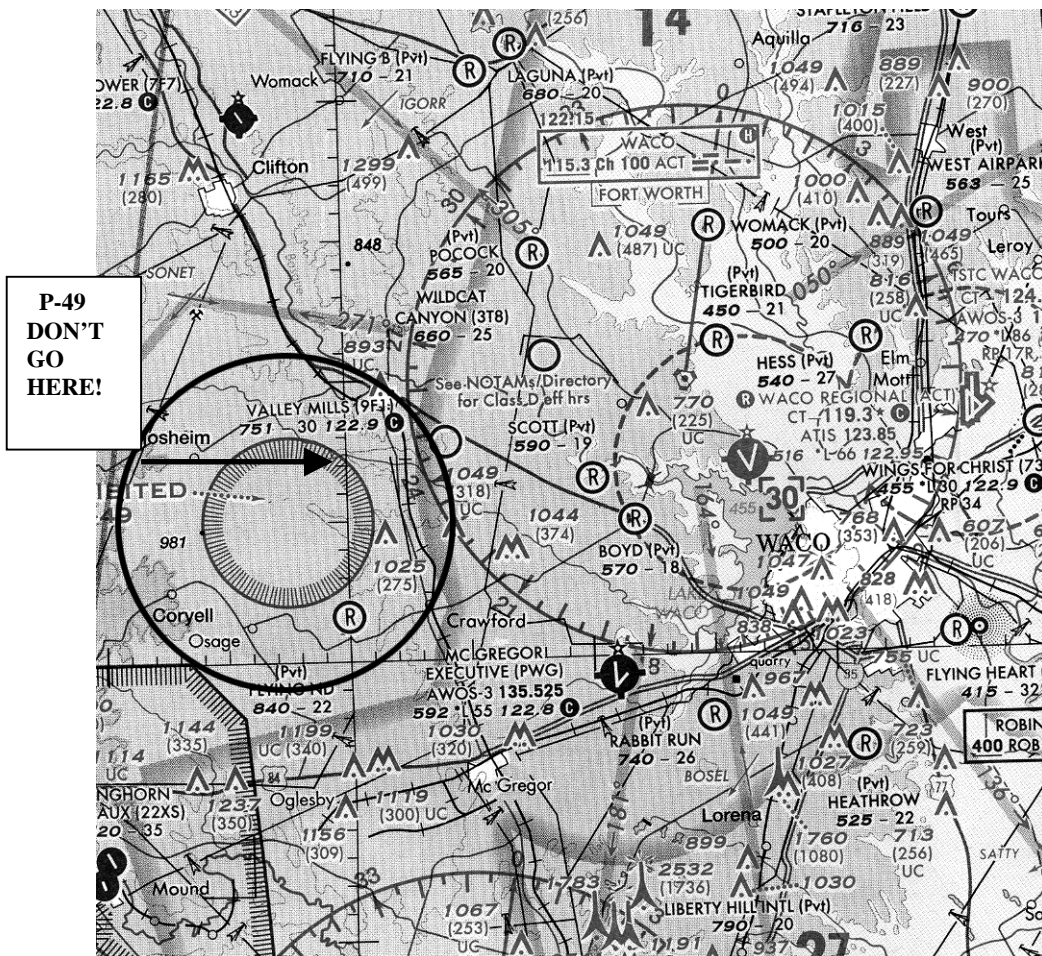
- Study a current sectional chart for the area.
- Call Flight Service, let them know where you are going and ask about TFR's.
- Ask for NOTAM's
- Use flight following
- File a VFR flight plan
- File an IFR flight plan
- Go to the AOPA website for the latest TFR charting
- Think!!!!

If you are weak in using any of these procedures, get with an instructor or experienced aviator now! Get up to speed, and don't contribute to the demise of GA.

Okay, this has been stern and blunt. But, I am a general aviator because I love it and want the

freedom to fly passed on to others. We're a stubborn lot, but we are also intelligent for the most part. Let's stop this trend now, before non-aviators in National Security, the Secret Service and Transportation Safety step in with

draconian measures to solve the problem. Please don't take this lightly.....It is a real possibility!

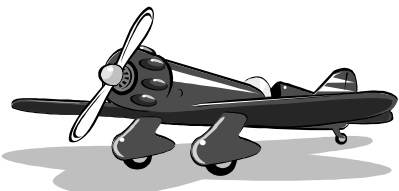


**San Antonio Sectional showing P-49. An associated TFR will vary in size!  
Note the proximity to the Waco, Texas, Airport and VOR. Do Not Use This Chart For Navigation!**

*Thanks, Jim McElvain*

## Prop Clarification

Man! The "Amazing Propeller" article in a previous issue created a flurry of responses! In the article, it



was recommended that if a propeller must be turned by hand, that is be turned backwards to prevent the possibility of an inadvertent start or kick of the propeller. Our publication was immediately followed by an article in AOPA's Pilot magazine, which implied that the practice of turning a propeller backwards could damage the vanes in a dry air vacuum pump. I received about 10,000 e-mails and letters deriding us for our mistake, or asking who was right. Well, it seems that our article contained the best advice!

I spoke with two of the tech experts at Airborne, which is one of the largest manufacturers of dry vacuum pumps. Both stated that the possibility of damaging a vane by reverse rotation of the prop was virtually non-existent. High-speed counter rotation might cause damage, but it would have to be at a much higher speed than could be produced by hand turning the propeller.

So, we stand by the advice in Mr. Rabe's article. If you must turn a propeller by hand, move it slowly backwards. The remote chance of damaging an air pump is easily offset by gains in safety.

Jim McElvain  
Regional Safety Program Manager



## THE RYTHYM OF LIFE

Mary Donahue, Safety Program Manager at Baton Rouge

A wise man once told me that life's trials and tribulations could be compared to an EKG. With each beat of your heart, a "blip" appears on the screen. This up and down pattern goes along with life's good times and bad. Without the ups and downs of life, we would have a flat-line and we all know what that means!

With these challenges comes stress. We all have stress to varying degrees. The problem comes from how we handle stress in our lives (some people go to the gym to "work it out", some people hold it in and try to "tough it out"). Stress can come from "good" things, such as a job promotion, a wedding, or building a house. It can also be the result of a death in the family, the loss of a job, or an argument with a close friend. Think of how the event keeps slipping into your mind, when you should be concentrating on other tasks. Because of stress, we may wake up in the morning not feeling like we are rested and may even lead to insomnia. Stress can lead to chronic fatigue, which means that we are not focused and may be easily distracted. A simple test

to see if you are sleep deprived is if you need an alarm clock to wake up. If you are rested, you will probably wake up before the alarm goes off.

We don't know how many accidents can be attributed to stress and chronic fatigue. The person who is sleep deprived may take undue risks and disregard his or her personal flight limits. They may push weather or may misunderstand clearances from approach control. They are not safe to fly under these circumstances.

The key to not becoming an accident statistic is to do your own personal assessment before you fly. Do you have any unusual circumstances, both good and bad, in your life? If so, you might want to reconsider your flight, particularly if it will be lengthy or will be in marginal weather conditions. You may also want to ask a flying buddy to come along for relief or to act as a safety pilot.

Finally, consider the I M SAFE check (I=Illness; M=Medication; S=Stress; A=Alcohol; F=Fatigue; E=Emotion). If you can answer yes to any one of these factors, it could mean that you are not "airworthy".

The "I AM SAFE" check works! Use it, and it could keep you from ending up with the dreaded flat-line.

*SW Wings "Iced Up"*

**Gloria Tanguay and I have a great time when we get the opportunity to put together an issue of the "SW Wings Newsletter." Unfortunately, like everything else, priorities and funding have changed drastically over the last year. There is no "fenced" funding for the newsletter, and it was only through some innovative CFO financing that we were able to finance this issue. So, future issues will be sporadic at best, and will depend upon our ability to cajole, baffle and bewilder those who control the purse strings. Thanks for supporting us with your letters and comments.**

**JIM**



### **The Civil Air Patrol and Safety**

Uday Garadi

(Editors note: This article references a specific unit, but if interested, you can find the unit closest to you by contacting the United States Air Force Civil Air Patrol. Membership would allow for a greater degree of proficiency at an affordable price. And, with today's present climate, you may be able to provide crucial services to your nation.)

Safety is the number one priority at the Civil Air Patrol (CAP) Unit, TX-129 Fort Worth Senior Squadron. The CAP is America's Air Force Auxilliary, building the nations finest force of citizen volunteers.

If you are a pilot, and want to build hours towards a higher rating, or just want to be a better, safer pilot, the Fort Worth CAP TX-129 Senior Squadron is the place to be. There are many advantages. Since the CAP is a volunteer organization, all of your expenses such as uniforms, proficiency flights and check rides are tax deductible. The airplanes (C172's and C182's) are well maintained and are in

great condition. Unlike the required FAA flight review (BFR), the CAP requires that a pilot be checked out annually. This includes a written test, aircraft questionnaire and flight check. When you fly the missions, such as ELT, cadet orientation flights, ROTC, CN/Customs, Fire Watch, Low Level Route Survey and Search and Rescue (SAR), you fly for free. CAP members can rent the unit planes for proficiency or cross-country flights at substantially lower rates than at any other FBO in the Metroplex area. The Fort Worth Senior Squadron meets every Tuesday evening at 7:00 PM, in the basement of the Fort Worth Meacham Airport Main Terminal. Each meeting includes a training session on topics such as ground operations, crew resource management, maintenance problems, aircraft condition, weather, summer and winter operations and more. The squadron counts many experienced pilots, instructors and check airmen as members. The web site is <http://www.geocities.com/tx129/>. Senior commanders are Lt. Col. Jim Zoeller (817-265-3854), and Lt. Col. Dan Logue (817 481-6113).

## **CARBURETOR ICE**

Clyde O'Neill

Aviation Safety Inspector, BTR FSDO

Since engine power loss resulting from an accumulation of carburetor ice continues to be a leading cause of incidents/accidents, it is important that pilots and flight instructors be aware of factors related to carburetor management.

The Flight Training Handbook (AC 61-21A), which was superseded in 1999 by the Airplane Flying Handbook (FAA-H-8083-3), states in Chapter 2, INTRODUCTION TO AIRPLANES AND ENGINES, Fuel/Air Mixture Control (Page 19), that:

1) "Gasoline will not burn unless it is first mixed with air (oxygen) in the proper proportion. Thus, 12 pounds of air and 1 pound of fuel may be described

as an air/fuel ratio of 12:1. Mixtures as rich as 8:1 and as lean as 16:1 will burn in the cylinder of an engine that develops maximum power with about a 12:1 ratio."

Combustion is a chemical reaction described as rapid oxidation (the union of oxygen with a substance). The only difference between a piece of metal rusting, and gasoline vapors burning, is the amount of time it takes for the oxidation to take place. The most basic hydrocarbon, Methane ( $\text{CH}_4$ ), when chemically combined at the correct weight ratio with Oxygen ( $\text{O}_2$ ), results in the formation of two new substances, Water ( $\text{H}_2\text{O}$ ) and Carbon Dioxide ( $\text{CO}_2$ ), plus a lot of heat energy. An aircraft contrail is simply a visible cloud of water vapor exhausted from the engine(s) into the cold atmosphere.

2) "As the airplane climbs higher and higher and the fuel/air mixture becomes richer, excessive fuel causes the engine to lose power and to run rougher and rougher."

When air passes through the throat (venturi) of a carburetor, it creates a low pressure that siphons fuel into the airflow through a metering nozzle. The throttle valve regulates the volume of air that flows through the carburetor and the volume of air determines the volume of fuel being metered. Even if Helium (an inert gas that won't support combustion) was substituted for air, the volume of Helium would determine the volume of fuel being metered. Although the mixture won't burn in the cylinders, the carburetor has done its job of metering the fuel according to the volume of Helium.

Therefore, if the volume of fuel is always metered by the volume of air determined by the throttle opening, the carburetor must be set up to insure that the ratio of air/fuel by weight is optimal (i.e. 12:1) at full rich in a standard sea level atmosphere ( $15^\circ\text{C}$  and  $29.92''\text{Hg}$ ). Once the initial setup is made, the only time the air/fuel ratio will ever be at 12:1 at full rich is when the airplane is in a standard atmosphere at sea level. Whenever the atmosphere is more dense than standard ( $>29.92''\text{Hg}$  and/or  $<15^\circ\text{C}$ ),

the air/fuel mixture will be leaner than 12:1. Whenever the atmosphere is less dense than standard ( $<29.92''\text{Hg}$  and/or  $>15^\circ\text{C}$ ), the air/fuel mixture will be richer than 12:1.

When operating an aircraft with a normally aspirated, carbureted engine, from an airport at a standard sea level atmosphere, the BEFORE TAKEOFF checklist calls for CARB HEAT . . . APPLY (Check for RPM drop).

What causes the RPM drop?

If the throttle is not moved, the volume of air flowing through the carburetor will not change and the amount (volume) of fuel being metered will not change. The only thing that changes is the density of the warmer air entering the carburetor. Since the weight of the air is decreased (fewer molecules of oxygen per volume) and mixed with the same weight of fuel (same molecules per volume), the mixture ratio becomes richer ( $<12:1$ ). The engine runs rougher and loses power (RPM). This RPM loss can be recovered while carburetor heat is ON by moving the manual mixture control toward a leaner setting to move the mixture ratio back toward the original value of 12:1.

What else should the pilot be looking for while the carburetor heat is ON?

After a drop in RPM is noted, continue to observe the tachometer to detect a possible increase in RPM that would indicate carburetor ice was present and melted by the application of the warmer air. An excellent article, "Carb Ice Versus Carb Heat", written by FAA Aviation Safety Councilor, Pete Humphrey, offers an excellent discussion on the subject.

As pilots become more familiar with the fact that a carburetor meters fuel by volume, and that a mixture ratio is a product of molecular weights per unit of volume, other scenarios will be easier and safer to deal with.

Scenario #1: The aircraft is operating from a sea level airport on a hot and humid summer day.

The density altitude may be near 3000' MSL. Therefore, the mixture ratio has moved from 12:1 (optimal) toward a richer 8:1 (limit) before the aircraft leaves the ground and the engine will not develop maximum power for takeoff at a full rich setting. When the aircraft is climbed to 3000' MSL and flown to the practice area to do some air work (stalls, slow flight, etc.) the mixture ratio could be nearing a density altitude of 6000' MSL. Some flight instructors recommend that their less experienced pilots not lean the mixture unless climbing above 3000' MSL, especially when they will be making some major power changes during the practice session. When the pilot applies carburetor heat at a density altitude of 6000' MSL, he/she essentially moves the mixture ratio further away from 12:1 toward the richer 8:1 (limit) and increases the possibility that the engine won't respond to an application of power due to the excessively rich mixture.

Scenario #2: That pilot in the scenario above may observe the RPM drop, and interpret it as the formation of carburetor ice. Carburetor heat is then applied.

Mr. Humphrey's article states that, "when carburetor ice particles form a deposit on the throttle plate, the carburetor can become choked up by this ice to the point that the engine receives less air than is required for full power. The once explosive mixture becomes so rich from excess fuel that the engine ceases to fire."

If the engine is already at a density altitude of 6000' MSL and carburetor ice causes it to run even richer, the application of carburetor heat increases the density altitude to a point where the mixture ratio may fall below the 8:1 limit and cause the engine to quit running. Adjusting the mixture ratio with the manual mixture control prior to application of carburetor heat will bring it back toward the optimal of 12:1 to help keep the engine running and develop more exhaust heat to be used for deicing the carburetor. This prevents the "catch 22" of "The more heat you need, the less you have; thus, the more you need".

More instruction should be devoted to the need for pilots to better understand the relationship of mixture management, not only as it relates to fuel economy in cruise flight, but to all aspects of carburetor management to deal with varying densities of air flow. Whether the change in air density is related to non-standard temperatures, barometric pressures, airport and cruising altitudes, or a poorly adjusted carburetor, the pilot should be prepared to adjust the manual mixture control to keep the mixture ratio as close to optimal (12:1 for maximum power) using whatever indication of proper mixture ratio (EGT, etc.) is recommended by the manufacturer.

*\*Mr. Humphrey's article is available on the BTR FSDO website (<http://www.faa.gov/fsdo/btr/CARBICE2.htm>)*

## ACCIDENTS AND INCIDENTS

While on climb out from the Llano Municipal Airport, the engine of a Cessna 172K quit. Substantial damage occurred to the aircraft when it landed in a Mesquite pasture. Prior to take-off the pilot noted that the left fuel tank gauge read empty, and the right gauge read between 1/3 and 1/2 full with the fuel selector set at the both position. No injuries to the pilot.

A Piper PA-23 stuck power lines while attempting a night localizer approach to the airport at Duncan, Oklahoma. The power lines had a height of 38' 6", and the wreckage was located one half mile short of the runway. The AWOS reported 1/4 mile visibility, fog, overcast ceiling @ 100' and temperature and dew point matched at 5 degrees C. The aircraft was destroyed, and the lone pilot received serious injuries.

The pilot of a Mitsubishi MU-2, and his wife, received fatal injuries when the aircraft spun in near Cerrillos, New Mexico. The private pilot had a multi-engine rating, but had just bought this aircraft and had accumulated only four hours of dual instruction prior to making the flight. Friends, and the pilot's flight instructor, had advised the

pilot not to undertake the flight from Peoria, Illinois, to Santa Fe, New Mexico.

## Don't Fly in MOA's

By: Jerry W. Johnson

There are a lot of Military Operations Areas on the map these days. And, since they are not Restricted or Prohibited airspace, we have a tendency to travel through them from time to time. My advice is to think carefully before you do. Here is why.....My son recently went through pilot training at Sheppard and Luke AFB's. Now that I know how much the military uses this airspace, and how little time the Air Force student has to look out, it appears to be flat out dangerous to fly through a MOA. Jets, such as the T-37, T-38, F-16, F15, etc. are doing combat chases and formation flying in these areas. My son tells me that there is little time to see, let alone miss a civilian aircraft when traveling at 300 to 500 knots. The 10,000 ft. air speed rule of 250 or less does not apply to military aircraft in MOA's and on training routes. He has told me of some aircraft penetrating their MOA's, and how frighteningly close they came to military aircraft. As I get older, I realize how inexperienced the new Air Force students, and all other new students, are at scanning for traffic and judging closure rates. Imagine a young person with less than 100 hours flying time, going through the air at 500 knots. Their ability to miss you would not make good odds for a bet.

Here are my suggestions concerning the transition of MOA's: Look up the altitudes and plan to fly under them if you are VFR and not working ATC. Contact the controlling agency and find out if they are active. Use flight following if penetrating a MOA to assist with traffic advisories. ATC will not issue an IFR clearance through an active MOA, so file an IFR flight plan and ATC will route you around MOA's that are active. Some MOA's are under military separation and some are under ATC separation. Your airplane maybe fast, but a jet can still overtake you from behind. Watch your six!

*Conscience is what hurts when everything else feels so good.*

*There will always be death and taxes; however, death doesn't get worse every year.*

*The real art of conversation is not only to say the right thing at the right time, but also to leave unsaid the wrong thing at the tempting moment.*



## The Dragon Will Soon Wake!

Jim McElvain,  
SW Region Safety Program Manager

This past Saturday, the first one in September, my beautiful child bride and I hopped in our trusty Skyhawk (the Frog), and launched for a breakfast at Cedar Mills Resort on Lake Texoma. It was fairly early in the day for me, right at the crack of 8:30am, and we departed into a rising sun and a heavy layer of haze. I soon found myself trying to transition back and forth from visual reference to the gauges, with ensuing deviations from altitude and heading. Even though there was not a cloud in the sky, the best course was to center the nav needle and fly the gauges like I was in solid IMC.

The seasons are about to change, and with this phenomenon will come the inevitable fog, clouds and low visibility. An unfortunate side effect of these certainties of nature, will be the certainty of several SW Region pilots and their passengers dying in loss of control accidents. The aircraft wreckage won't be covered with ice or have been torn apart by wind shear or thunderstorms. It will be the result of the pilot losing visual reference,

followed by a loss of aircraft control. It is going to happen.

Want a little insurance? Err on the conservative side when dealing with weather, and get back in the books or training seminars to improve your WX prognostication skills. (Air full of moisture + cooling (frontal activity or impending darkness) =

Bad.) And then, go get some quality training on instrument flight. Better yet, get the Instrument Rating. Some day, no matter how careful you are, the WX demons are going to throw the old “poor vis” at you. Having the ability to “get on the gauges” can truly be the only hope you have.

## **Southwest Region Wings**

### **Aviation Information**

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*The Dragon Will Soon Wake*

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